

100
✓

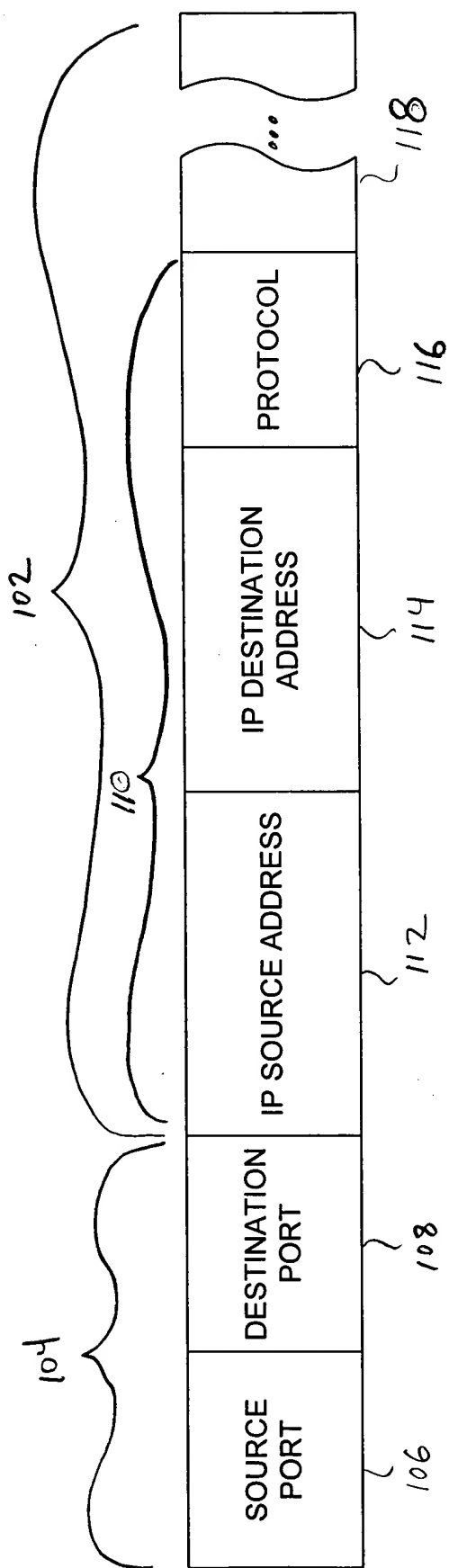


FIG. 1
(PRIOR ART)

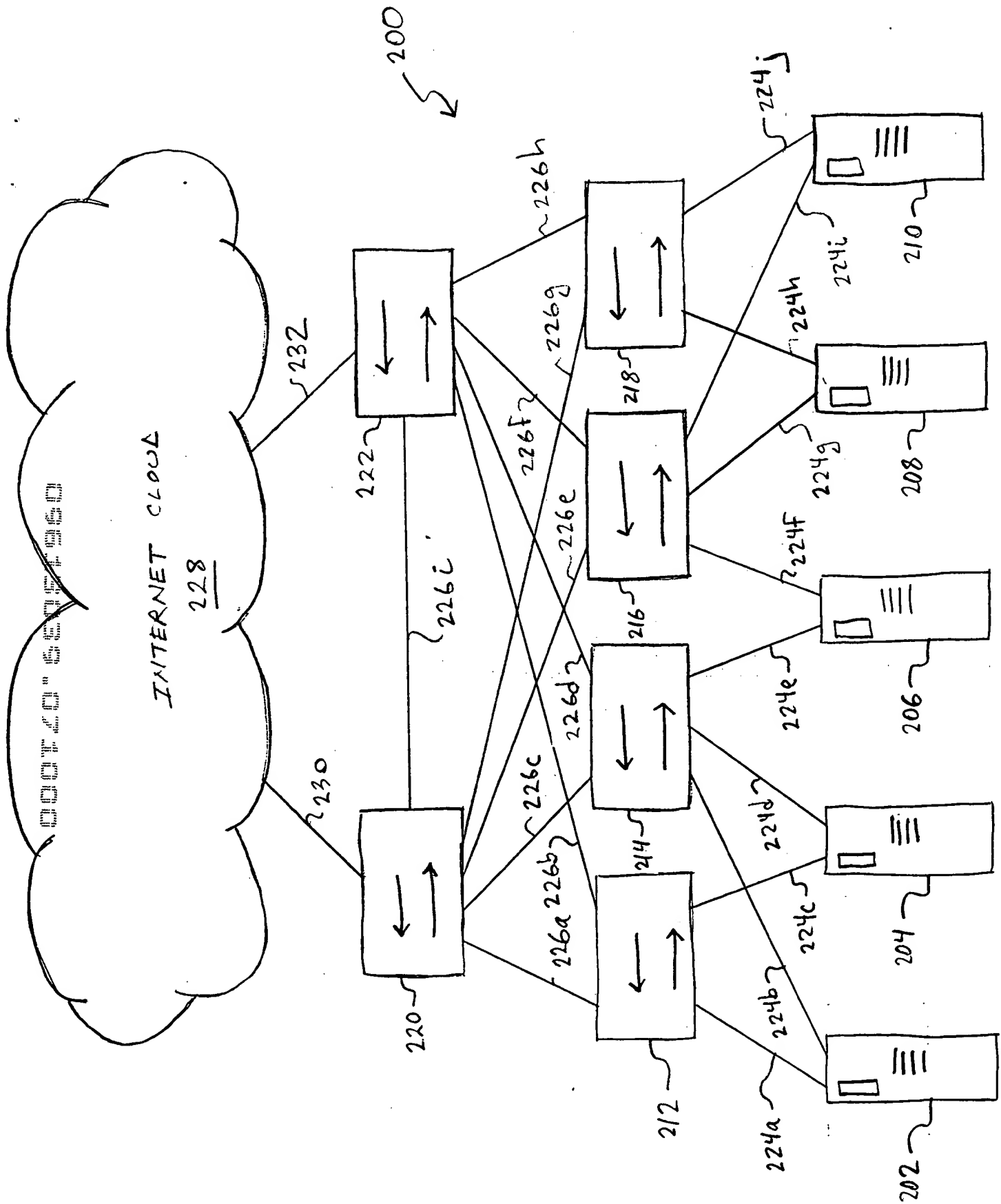


FIG. 2

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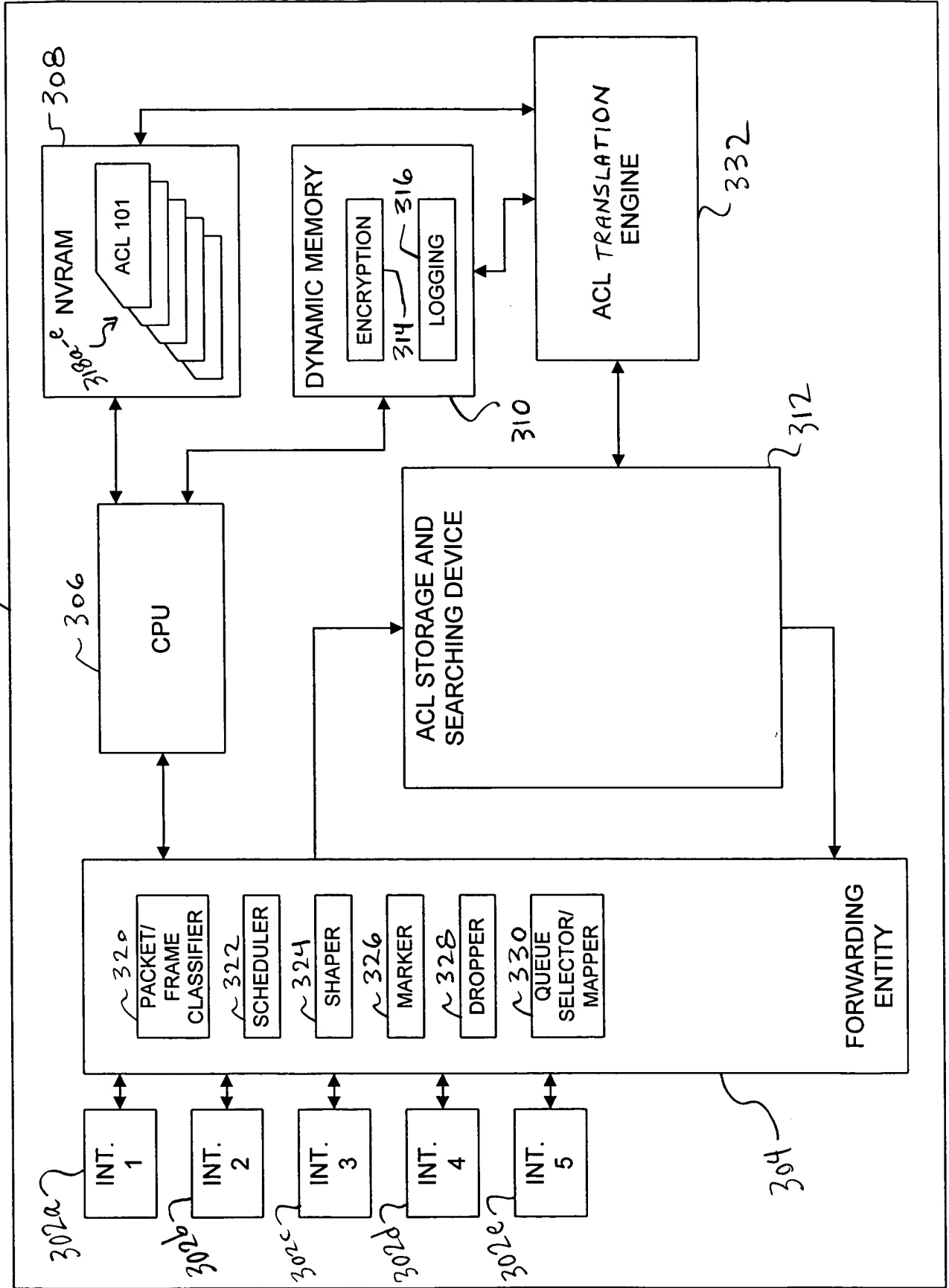


FIG. 3

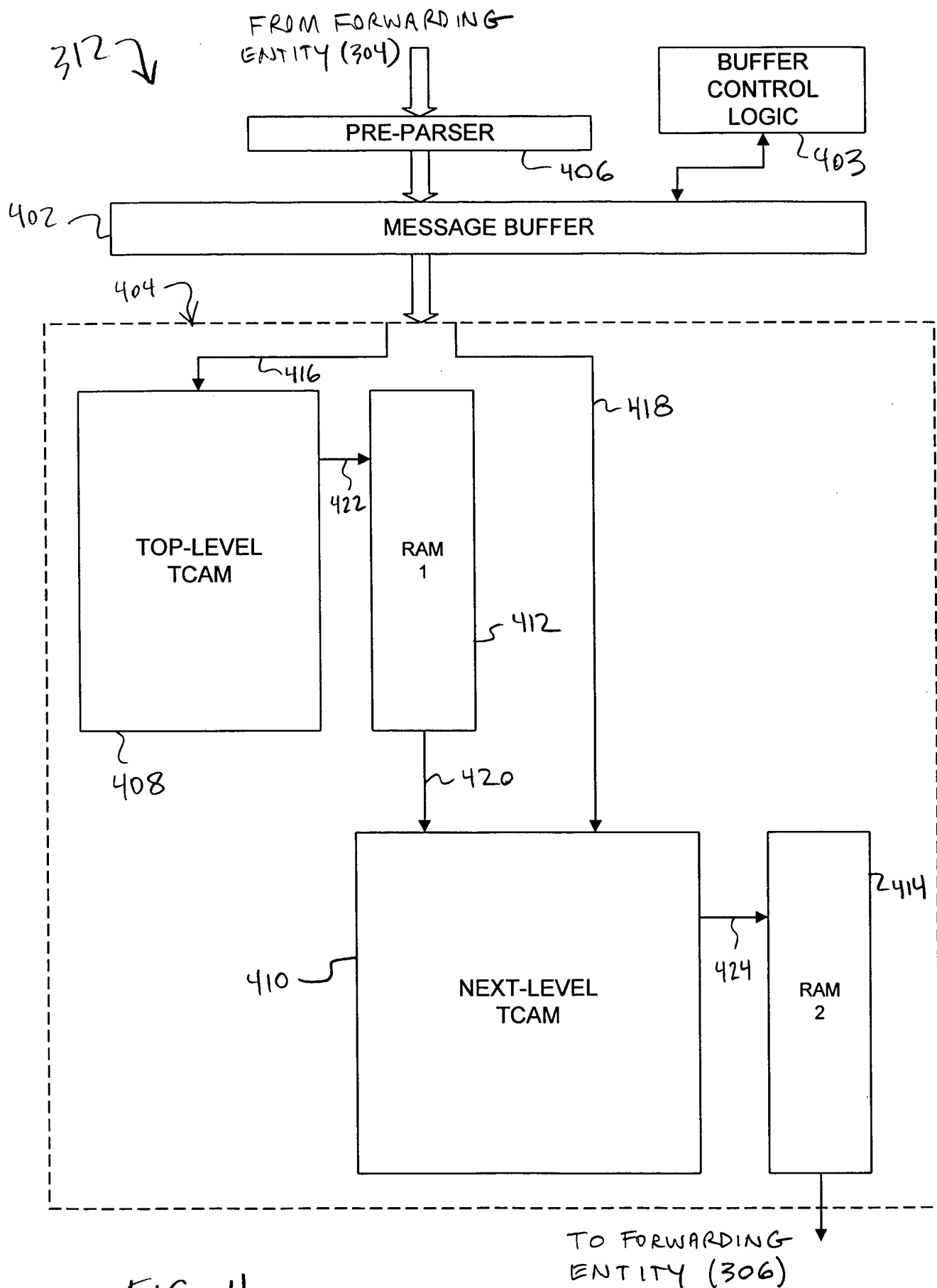


FIG. 4

000T 20" 31800T 950

ACL 101					
Source Address	Destination Address	Source Port	Destination Port	Protocol	Action
1362:2311:0000:0000:4612:X:X	X:X:X:X:X:X:X	X	X	X	Permit
2992:4612:0000:0000:X:X:X	X:X:X:X:X:X:X	80	X	X	Permit
X:X:X:X:2201:8909:3A22:FACA	2992:4612:0000:0000:X:X:X	X	X	X	Deny
2992:8909:3A22:X:X:X:X	X:X:X:X:X:X:X	100	X	X	Permit and Log
8526:6951:3698:0000:0000:7412:68DA:5000	X:X:X:X:X:X:X	X	X	X	Deny and Log
2113:9182:0000:0000:X:X:X	X:X:X:X:X:X:X	X	X	TCP	Deny
X:X:X:X:X:X:X	X:X:X:X:X:X:X	X	X	X	Deny

FIG. 5

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graph TD
    602[EXAMINE THE IP SOURCE ADDRESSES OF THE SUBJECT ACL AND IDENTIFY THEIR COORDINATE SUB-FIELDS] --> 604[DETERMINE THE NUMBER OF DISTINCT VALUES, K, THAT EACH COORDINATE SUB-FIELD MAY HAVE]
    604 --> 606[FOR EACH COORDINATE SUB-FIELD, COMPUTE THE MINIMUM NUMBER OF BITS NEEDED TO REPRESENT EACH DISTINCT VALUE, K]
    606 --> 608[ASSIGN A UNIQUE COORDINATE VALUE TO EACH DISTINCT VALUE, K]
    608 --> 610[CONCATENATE THE UNIQUE COORDINATE VALUES TO FORM A PLURALITY OF UNIQUE COORDINATE VALUE SEQUENCES]
    610 --> 611[ORDER THE UNIQUE COORDINATE VALUE SEQUENCES FROM SMALLEST TO LARGEST]
    611 --> 612[REPEAT STEPS 602 THROUGH 611 FOR THE IP DESTINATION ADDRESSES OF THE SUBJECT ACL]
    612 --> 614[LOAD THE FIRST RAM WITH THE UNIQUE COORDINATE VALUE SEQUENCES AND LOAD THE TOP-LEVEL TCAM WITH THE CORRESPONDING ADDRESSES]
    614 --> 616[LOAD THE NEXT-LEVEL TCAM WITH THE ACEs OF THE SUBJECT ACL, REPLACING THE ORIGINAL IP SOURCE AND DESTINATION ADDRESSES WITH THE PREVIOUSLY GENERATED UNIQUE COORDINATE VALUE SEQUENCES FOR THESE ADDRESSES]
    616 --> 618[LOAD THE ACL's ACTIONS INTO THE SECOND RAM]
    618 --> 620([END])
  
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FIG. 6